Contents

Statistical Tables (continued)

Appendices

Introduction

The *State Energy Price and Expenditure Report (SEPER)* presents energy price and expenditure estimates individually for the 50 States and the District of Columbia and in aggregate for the United States. The estimates developed in the Combined State Energy Data System (CSEDS) are provided by energy source and economic sector and are published for the years 1970, 1975, and 1980 through 1997. Data for all years are available on a CD-ROM and via Internet. (See inside front cover.)

Consumption estimates used to calculate expenditures and the documentation for those estimates are taken from the *State Energy Data Report 1997, Consumption Estimates (SEDR),* published in September 1999. Expenditures are calculated by multiplying the price estimates by the consumption estimates, which are adjusted to remove process fuel; intermediate petroleum products; other consumption that has no direct fuel costs, i.e., hydroelectric, geothermal, wind, solar, and photovoltaic energy sources; and wood and waste obtained at no cost. See Section 7, "Consumption Adjustments for Calculating Expenditures," on page 417.

All expenditures are consumer expenditures; that is, they represent estimates of money spent directly by consumers to purchase energy, generally including taxes. (See box on page 2.)

The documentation in Appendix A describes how the price estimates are developed, including sources of data, methods of estimation, and conversion factors applied. Appendix B provides metric and other physical conversion factors for measures used in energy analyses.

This report is an update of the last edition, the *State Energy Price and Expenditure Report 1995,* published in August 1998. Two years of new data, 1996 and 1997, appear in this edition, along with numerous revisions to previously published data. Many small revisions are rounding differences caused by the conversion from a mainframe database to a personal computer database system. Prices and expenditures for wood and waste used in the residential, commercial, and industrial sectors for 1970 through 1989 have been incorporated into this edition, adding as much as $1.7 billion to total U.S. expenditures for energy in 1989. Kerosene prices in the residential, commercial, and industrial sectors for 1983 forward are revised to use Energy Information Administration (EIA) data in place of non-EIA data. These and other revisions since the last edition of this report are explained in detail in Appendix C.

Reliable data for State-level prices rarely exist, especially as series that are consistent over a long period. Estimates and assumptions are applied to fill data gaps and to maintain consistent definitions in the data series over time. CSEDS incorporates the most consistent series and procedures possible. Users of this report (and the electronic data files) should recognize the limitations imposed on the system due to changing and inadequate data sources. Estimates often are based on a variety of surrogate measures that are selected on the basis of availability, applicability as indicators, continuity over time, and consistency among the various energy commodities. Original source documents for data used in CSEDS (cited in the *SEPER* documentation) include descriptions of collection methodologies, universes, imputation or adjustment techniques (if any), and errors associated with the individual processes. Due to the numerous collection forms and procedures associated with these reports, it is not possible to develop a meaningful numerical estimate of the overall statistical errors of the material published in *SEPER.*

It is also important to note that, even within a State, a single average price may have limited meaning in that it represents a consumption-weighted average over a whole State. For example, urban and rural

Note: Throughout this report, the term "State" includes the District of Columbia.

electricity prices can vary significantly from a State's weighted average, and prices in one region of a State may differ from those in another because of access to less expensive hydroelectricity. Differences within a State may also be greater than differences among adjacent States. Thus, the principal value of the estimates in this report lies in general comparisons among the States, interstate comparisons for a given year, and the analysis of trends over several years.

The five economic sectors used in *SEPER* correspond to those used in *SEDR* as follows:

Taxes in *SEPER*

While the objective is to provide price estimates that include all taxes, the data sources used in *SEPER* do not treat taxes uniformly. In general, where taxes are included in the source data, they are also included in *SEPER*. Where taxes are not included but can be separately estimated, they are generally added. In many cases, States and even some localities provide tax exemptions for various kinds of activities or classes of end users, and readers of this report should be careful to consider these exceptions when making detailed comparisons. The Energy Information Administration (EIA) is continuing to analyze these cases to see if a better representation can be made. A comprehensive and detailed study of taxes in EIA data is available in the report *End-Use Taxes: Current EIA Practices,* DOE/EIA-0583 (Washington, DC, August 1994). The status of tax data in this edition of *SEPER* is summarized below and described more fully in the Appendix A documentation for each energy source and sector.

End-Use Sectors

Coal. All steam coal and coking coal prices include taxes in all years. Appropriately, coal imports and exports in the industrial sector do not include end-user taxes.

Natural Gas. Natural gas prices are intended to include all Federal, State, and local taxes, surcharges, and adjustments billed to consumers. However, sales and other taxes itemized directly on customers' bills are frequently not reported as revenues and, therefore, are not included in calculating the prices.

Petroleum. Motor gasoline and diesel fuel prices include excise and other per-gallon taxes but do not include general sales taxes due to wide variation at the local level. Liquefied petroleum gases, distillate fuel oil, kerosene, and residual fuel oil prices include sales taxes in all years. Jet fuel, aviation gasoline, asphalt and road oil, lubricants and other petroleum products do not include taxes. Other petroleum products are miscellaneous products, petrochemical feedstocks (naphtha, other oils, and still gas), industrial petroleum coke, special naphthas, and waxes.

Wood and Waste. Wood and waste prices for the residential, commercial, and industrial sectors include taxes.

Electricity. Taxes paid directly by electric utilities (rather than end users) are considered operating costs and are passed on to the end users as part of the price. Depending on jurisdiction, taxes collected from end users and turned over directly to a government authority are not generally included in the reported revenues and, therefore, are not included in the calculation of the prices.

Electric Utility Sector

Coal, natural gas, petroleum coke, nuclear, and wood and waste prices include all taxes, transportation, and handling costs. There are no direct fuel costs (or taxes) for hydroelectric, geothermal, centralized solar, or wind energy. Capital, operation, and maintenance costs and related taxes associated with these energy sources are included indirectly because electricity prices reflect their presence in the rate base.

The **residential sector** is considered to consist of all private residences, whether occupied or vacant, owned or rented, including single-family homes, multifamily housing units, and mobile homes. Secondary homes, such as summer homes, are also included. Institutional housing, such as school dormitories, hospitals, and military barracks, generally are not included in the residential sector; they are included in the commercial sector.

The **commercial sector**, as defined economically, consists of business establishments that are not engaged in transportation or in manufacturing or other types of industrial activity (agriculture, mining, or construction). Commercial establishments include hotels, motels, restaurants, wholesale businesses, retail stores, laundries, and other service enterprises; religious and nonprofit organizations; health, social, and educational institutions; and Federal, State, and local governments. Street lights, pumps, bridges, and public services are also included if the establishment operating them is considered commercial.

The **industrial sector** comprises manufacturing industries, which make up the largest part of the sector, along with mining, construction, agriculture, fisheries, and forestry. Establishments in the sector range from steel mills to small farms to companies assembling electronic components.

The **transportation sector** consists of private and public vehicles that move people and commodities. Included are automobiles, trucks, buses, motorcycles, railroads and railways (including streetcars), aircraft, ships, barges, and natural gas pipelines.

The **electric utility** sector consists of privately and publicly owned establishments that generate, transmit, distribute, or sell electricity primarily for use by the public and meet the definition of an electric utility. Nonutility power producers are not included in the electric utility sector.

Although end-use allocations of energy consumption and expenditures follow those guidelines as closely as possible, some data are collected by using different classifications. For example, electric utilities often classify commercial and industrial users by the quantity of electricity purchases rather than by the business activity of the purchaser. Agricultural use of natural gas is collected and reported in the commercial sector through 1995 and in the industrial sector for 1996 forward. Since agricultural use of natural gas cannot be identified separately, the discrepancy cannot be reconciled. Another example is master-metered condominiums, apartments, and buildings with a combination of residential and commercial units. In many cases, billing and metering practices cause residential energy usage of electricity, natural gas, or fuel oil to be included in the commercial sector. In those cases, there is no basis for separating residential from commercial use. Readers are advised to consult the *SEDR* documentation for specific assumptions regarding the consumption estimates.

Where prices for an energy source and sector are not available, comparable prices are substituted. For example, the transportation sector motor gasoline prices are also applied to the commercial and industrial sectors. In some cases, the average of adjacent States' prices is assigned to a missing State price. The documentation elaborates on these price assumptions.

Except where specified, it is generally not possible to describe the prices in this report as "wholesale" or "retail." The prices paid in each consuming sector are actually a combination of both sets of prices, depending on a number of closely interrelated factors, and the data reflect the combination of prices actually paid by each sector. Almost all residential sector prices are close to retail prices, reflecting the relatively small quantities of individual purchases and the increased costs of extensive, diffuse, and multilayered distribution systems. Similarly, in the transportation sector almost everyone pays the same retail-like price for motor gasoline, regardless of volume purchased or location of purchase. Conversely, residual fuel oil prices in the transportation sector are certainly more wholesale-like as a result of large deliveries to bulk facilities in major ports. In the same manner, most large industrial and many large commercial expenditures can be thought of as near wholesale, frequently involving direct access to a producer or bulk distribution facility for very large quantities. Many smaller industrial and commercial facilities pay something much closer to retail prices as a result of the small quantities involved and their institutional distance from primary suppliers. Notable exceptions to these relationships include natural gas and electric utilities, which typically establish fixed rates for each of several classes of service, depending on representative quantities, service factors, and distribution expenses.